

Product Guide



GaAs | GaN | MMIC | RFIC | FET

CMLMicro
COMMUNICATION SEMICONDUCTORS

Together, Transforming How The World Communicates

WWW.CMLMICRO.COM



About CML Micro

CML Micro is a world leader in the design, development and supply of mixed signal, RF, and microwave semiconductors for global communications markets. Headquartered in the UK, and with a world-class design team in RF and low-power ICs, our manufacturing and supply network spans across the United States, Europe, and Asia, operating on a global scale.

We offer a wide range of products, including mmWave MMICs, RF transceivers, baseband processors, data controllers, and interface devices, which are used in various applications such as Critical Communications, Satellite and Network Infrastructure.

TOGETHER TRANSFORMING HOW THE WORLD COMMUNICATES



SpμRF is an innovative product range featuring MMICs, RFICs and FETs, which leverages the capabilities of compound semiconductor technology for use across applications covering MHz to mmWave.

The CML SpμRF product range can be used across a variety of applications covering MHz to mmWave. We use our innovation in IC design to enable our customers to pursue exciting new products and opportunities in an evolving technology landscape. By offering products that are easy to design-in and evaluate, we help to make our customers' RF design decisions simpler.

To learn more about our SpμRF product group, or to discover how else CML Micro helps the world communicate, visit www.cmlmicro.com

MMIC Amplifiers

Setting new benchmarks in performance, reliability and innovation.

PAAs >1 GHz

Part	Frequency (GHz)	Gain (dB)	P1dB (dBm)	Psat (dBm)	OIP3 (dBm)	IRL/ORL (dB)	Voltage (V)	Package (mm)
MMA-445933H-M5	4.4 - 5.9	31	33	-	45	10 / 7	7.5	5X5 QFN
MMA-445933H-02	4.4 - 5.9	33	33	-	45	10 / 7	7.5	02
MMA-495933-M5	4.9 - 5.9	10.5	33	-	46	9.6 / 4.8	7.5	5X5 QFN
MMA-070936-M5	7 - 8.5	28.5	34	36	45	15	6	5X5 QFN
MMA-121633-M5	12.5 - 15.5	23.5	32	34	42	10	4 - 6	5X5 QFN
MMA-172135-M5	17 - 21	27	35	-	42.5	12	6	5X5 QFN
MMA-172135D	17 - 21	27	35	-	-	12 / 10	6	Die
MMA-212734D-M5	21 - 27	25	34	-	-	15 / 12	6	5X5 QFN
MMA-243034D-M5	24 - 30	23	34	34.5	-	8 / 10	6	5X5 QFN
MMA-273034D-M5	24 - 30	23	34	-	34.5	8 / 10	6	5X5 QFN
"CMX90A703 (Coming Soon)"	26.5 - 29.5	16	-	35.4	-	-	28	4x4 QFN
MMA-273336-M5	27 - 33	22	35.5	36.5	38	10	6	5X5 QFN
MMA-273336D-M5	27 - 33	22	35.5	36.5	38	10	6	5X5 QFN
MMA-273336	27 - 33	22	35.5	36.5	38	10	6	Die
MMA-273334D-M5	27 - 33	26	33	34	-	10	6	5X5 QFN
MMA-273036-M5	27.5 - 30	22	36	-	-	10 / 8	6	5X5 QFN
MMA-273036D-M5	27.5 - 30	22	36	-	36.5	10 / 8	6	5X5 QFN
MMA-374030-M5	37 - 40	24	31	32	38	10	4 - 6	5X5 QFN

*Engineering samples available upon request

PAAs Sub-1 GHz

Part	Frequency (MHz)	Gain (dB)	Psat (dBm)	Efficiency (%)	Voltage (v)	Bias Current (mA)	RF Match	Package (mm)
CMX901	130 - 950	39	34	61% @ Psat	2.5 - 6	18	External	5x5 QFN
CMX902	130 - 700	39	34.5	62% @ Psat	2.5 - 6	16	External	5x5 QFN
CMX90A003	860 - 960	30	29.5	49% @ Psat	1.9 - 3.0	70	Internal	4x4 QFN
CMX90A004	860 - 960	30	32.5	49% @ Psat	2.7 - 4.5	78	Internal	4x4 QFN

MMIC Amplifiers

Setting new benchmarks in performance, reliability and innovation.

Travelling Wave Amplifiers (TWAs)

Part	Frequency (GHz)	Gain (dB)	P1dB (dBm)	P3dB (dBm)	Gain Flatness (dB)	OIP3 (dBm)	IRL/ORL (dB)	Voltage (V)	Package (mm)
MMA-005022-M4	30 kHz - 50	15.5	22	25	+/- 1.0	37	10	7	4X4 QFN
MMA-005022B	30 kHz - 50	15.5	22	25	+/- 1.0	37	10	7	Die
MMA-012727-M4	0.1 - 26.5	12.5	26	27	+/- 0.5	35	11	8 - 12	4X4 QFN
MMA-012030-M4	0.1 - 20	12.5	27	29	+/- 0.5	37	10	12	4X4 QFN
MMA-012727	0.1 - 26.5	12.5	26	27	+/- 0.5	35	11	8 - 12	Die
MMA-012030	0.1 - 20	12.5	27	29	+/- 0.5	37	10	12	Die

Driver Amplifiers

Part	Frequency (GHz)	Gain (dB)	IRL/ORL (dB)	NF (dB)	P1dB (dB)	OIP3 (dBm)	Voltage (V)	Bias Current (mA)	Package (mm)
MMA-053223-M4	0.5 - 3.2	12	10 / 10	3.5	24	42	6	120	4X4 QFN
MMA-053223	0.5 - 3.2	12	10 / 10	3.5	24	42	6	120	Die
MMA-054025-M4	0.5 - 4	11	10 / 10	3.5	25	44	7.5	300	4X4 QFN
MMA-054025-87	0.5 - 4	11	10 / 10	3.5	25	44	7.5	300	87
MMA-054025	0.5 - 4	11	10 / 10	3.5	25	44	7.5	300	Die
MMA-053026-82	0.9 - 2	11	10 / 8	3	2	44	8	220	82
MMA-020624-M4	2 - 4	17	12 / 12	3	25	40	8	250	4X4 QFN
MMA-020624	2 - 4	17	12 / 12	3	25	40	8	250	Die
CMX90A702	26.5 - 29.5	21	10 / 7	-	25	32.5	3	182	4x4 QFN

Gain Blocks

Part	Frequency (GHz)	Gain (dB)	P1dB (dBm)	IRL/ORL (dBm)	OIP3 (dBm)	NF (dBm)	Voltage (V)	Bias Current (mA)	Package (mm)
MMA-011015-C3	1 - 10	15.0	16.0	12/15	-	4.5	6	75	3X3 QFN
MMA-011015	1 - 10	15.0	16.0	12/15	-	4.5	6	75	Die
CMX90G302	1.4 - 7.1	14.5 - 16.5	11.5	-	21.0	1.9	2.7 - 5	22	3x3 QFN
CMX90G301	1.4 - 7.1	14.5 - 15.5	11.5	-	21	1.9	2.7 - 5	22	3x3 QFN
CMX90G702	6 - 18	9.5 - 11.5	9.5	-	18.5	3.0	2 - 5	22	3x3 QFN
CMX90G701	6 - 18	9.5 - 10.5	10.0	-	19.0	3.0	2 - 5	22	3x3 QFN
MMA-062020-C3	6 - 20	13.5	18.3	10	28.0	-	3 - 6	120	3X3 QFN
MMA-062020	6 - 20	13.5	18.3	10	28.0	-	3 - 6	120	Die
CMX90B701	17 - 23	17.0	7.5	-	17.5	4.0	3 - 5	10	3x3 QFN
MMA-174321-M4	17 - 43	20.0	21.0	8	26.0	-	3 - 5	150 - 250	4X4 QFN
MMA-174321	17 - 43	20.0	21.0	8	26*	-	3 - 5	150 - 250	Die
CMX90B702	23 - 29.5	17.3	5.0	-	15.0	4.0	3 - 5	10	3x3 QFN

GaN High Power Amplifiers

Point-to-Point Radio and Wireless Mesh Networks GaN based High Power Amplifiers.

GaN Hybrid PA

Part	Frequency (Ghz)	Gain (dB)	IRL/ORL (dB)	Pout @ -3 dB (dBm)	Pout @ 2.5% EVM	Vdd (V)	DC Current (mA)	Package
MGA-242740-02	2.4 - 2.7	14	8 / 8	40	33	28	50 - 400	2
MGA-333840-02	3.3 - 3.8	15	8 / 8	40	33	28	100 - 400	2
MGA-445343-99	4.4 - 5.3	14	7 / 4	43	35	28	150 - 300	99
MGA-444940-02	4.4 - 4.9	12	8 / 10	40	33	28	100 - 400	2
MGA-495940-02	4.9 - 5.9	12	8 / 8	40	33	28	100 - 400	2
MGA-515844-99	5.1 - 8.5	16	10 / 12	44	-	28	-	99
MGA-718544-HP3	7.1 - 8.5	13.5	4.5 / 6	44	-	28	-	HP3
MGA-718540-HP3	7.1 - 8.5	14	10 / 7	42	-	28	-	HP3

GaN MMIC PAs

New Developments

Ideal applications include wireless mesh networks, point-to-point microwave data links, military wireless communications, telemetry, and avionics.

Part	Frequency (GHz)	Gain (dB)	Psat (dBm)	Band	DC Power To maintain IM3 (W)	IRL/ORL (dB)	Package
MMG-121543-M5	1.2 - 1.5	28.5	43	L-band	20	11 / 13	5x5 QFN
MMG-202544-M5	2.0 - 2.5	27.0	44	S-band	25	7 / 12	5X5 QFN
MMG-446040-M5	4.4 - 6.0	30.0	40	C-band	10	7 / 15	5X5 QFN

*Engineering samples available upon request

Discrete FETs

Setting a new standard for high-fidelity, high-performance applications in the RF spectrum.

GaAs FETs / PHEMTs

Part	Package Available Sealed / Hermetic	RF Power @ 12 GHz (dBm)	Gain @12GHz (dB)	NF @12GHz (dB)	PAE @12GHz (%)	Chip Size (microns)	Gate Width (microns)	Gate Pads (each)	Drain Pads (each)	Replaces
MwT-1F	70 / 71 / 73	24	10	2	--	775 x 241	630	1	1	MwT-1
MwT-3F	70 / 71 / 73	22	11	--	35	406 x 241	300	1	1	MwT-3
MwT-5F	71	19	13	3.5	--	406 x 241	300 Dual	1	3	MwT-5
MwT-7F	70 / 71 / 73	21	11	2	--	356 x 241	250	2	2	MwT-7, S7, LP7
MwT-9F	71	26.5	8.5	--	35	419 x 241	750	1	1	MwT-9, A9
MwT-11F	71	30	9	--	40	775 x 343	2400	2	2	MwT-11
MwT-PH3F	70 / 71 / 73	24	16	--	60	410 x 340	300	1	1	N/A
MwT-PH4F	70 / 71 / 73	22	16	--	60	365 x 260	180	1	1	MwT-PH4
MwT-PH5F	71	22	16	--	45	330 x 400	300 Dual	1	1	MwT-PH5
MwT-PH7F	70 / 71 / 73	24	16	--	60	390 x 260	180	1	1	MwT-PH7
MwT-PH8F	71	30	10	--	40	315 x 690	1200	2	2	MwT-PH8
MwT-PH9F	70 / 71 / 73	27	11	--	50	480 x 315	750	1	1	MwT-PH9
MwT-PH11F	71	32	9	--	45	775 x 365	2400	2	2	MwT-PH11
MwT-PH15F	71	28	13	--	60	850 x 260	630	4	2	MwT-PH15
MwT-PH27F	70 / 71 / 73	24.5	16	--	40	410 x 340	400	1	1	QorvoTGF2040
MwT-PH28F	70 / 71 / 73	28	13	--	45	410 x 340	600	1	1	QorvoTGF2060
MwT-PH29F	70 / 71 / 73	29.5	11	--	45	410 x 480	800	1	1	REMD FDP750 BeRex BCP080C
MwT-PH30F	70 / 71 / 73	29.5	11	--	45	410 x 540	800	2	2	QorvoTGF2080
MwT-PH31F	71	31	9	--	45	540 x 410	1200	2	2	QorvoTGF2120
MwT-PH32F	71	32.5	8	--	45	540 x 410	1600	2	2	QorvoTGF2160
MwT-PH33F	70 / 71 / 73	24	16	--	50	315 x 440	300	1	1	N/A

All above products are space qualified.

- Ultra Linear, High Dynamic Range, Low Phase Noise
- GaAs Process is Approved for Space Applications with Proven Reliability
- Commercial, Industrial, Military, and Space Grades
- Sample Bond Pull, Die Shear, Wafer DC Burn In, and Bake Tests for wafer evaluation per MILPRF-38534
- 100% Die Probe Test with Data Recorded
- 100% Visual Inspection (to level 1, 3, or 4)

- 100% Idss Match to Provide Performance Consistency
- RF Sample Test Capability Available Upon Request
- Standard and Custom Device Specifications
- Hi-Rel and Space-Rel Screening Options Available JAN, JANTX, JANTXV, JANS
- RoHS (lead-free) Compliant Product Available
- Available in Chip and Package

- CML Micro has experience in supplying semiconductor devices to the space industry since 1985.
- CML Micro performs assembly, testing, screening, and qualifications testing for microwave semiconductor devices, microwave components and subsystems based on MIL-PRF-38534 and according to military and government Hi-Rel standards such as MIL-PRF-38535, MIL-STD-202, MIL-STD-883, MIL-STD-750, MIL-STD-810, MIL-Q-9858, MIL-STD-19500 and MIL-I-45208.
- Some of CML Micro's space qualified products are highlighted in this section. Equivalent screening to MIL-PRF-38534 class H and K, and NASA programs.

Legacy Devices

These products are available for purchase in limited quantities and may continue to be used in existing systems or designs. We encourage manufacturers and designers to transition to newer alternatives as these legacy products are nearing the end of their product life cycle, resulting in potential obsolescence and limited long term support.

GaAs FETs / PHEMTs RF Properties

Model	Package Available Sealed/Hermetic	Gate Width/ Length (um)	Gate Layout Method	Gate Drain Source Bond Pads	Chip Thick-ness VIA (mil)	S.S. Gain @ 12 GHz Typ/ Min (dB)	N.F. @ 12 GHz Typ/ Min (dB)	GA @ N.F. 12 GHz Typ/Min (dB)	P-1dB @ 12 GHz Typ/Min (dBm)	IP3 @ 12 GHz (dBm)	Chip Size (um-um)
MwT-1	70, 73 / 71	630 / 0.3	single stripe	01/01/2002	5, no	10.0 / 9.0	2.0 / -	7.0 / -	24.0/23.0	-	775 • 241
MwT-2	70, 73 / 71	630 / 0.3	single stripe	02/02/2003	5, no	8.5 / 8.0	- / -	- / -	24.5/23.0	-	775 • 241
MwT-3	70, 73 / 71	300 / 0.3	single stripe	01/01/2002	5, no	11.0 / 10.0	- / -	- / -	21.0/20.0	-	406 • 241
MwT-4	70, 73 / N/A	180 / 0.3	single stripe	01/01/2002	5, no	9.0 / 8.0	1.5 / 1.8	9.0 / 8.0	14.0/13.0	-	356 • 241
MwT-5	N/A / N/A	2 • 300 / 0.3	dual gate	01/01/2002	5, no	13.0 / 12.0	3.5 / -	11.0 / -	19.0/15.0	-	406 • 241
MwT-7	70, 73 / N/A	250 / 0.3	single stripe	01/01/2002	5, no	10.5 / 10.0	2.0 / -	8.0 / -	20.0/18.0	-	356 • 241
MwT-LP7 **	70, 73 / N/A	250 / 0.3	single stripe	01/01/2002	5, no	10.5 / 10.0	2.0 / -	8.0 / -	20.0/18.0	-	356 • 241
MwT-8	71	2400 / 0.3	Interdigit	02/02/2003	4, no	7.5 / 7.0	-	-	28.0/27.0	-	673 • 305
MwT-A9	70, 73 / 71	750 / 0.3	Interdigit	01/01/2002	5, no	9.5 / 8.5	1.8 / -	6.5 / 6.0	25.5/23.0	-	419 • 292
MwT-A989	SOT-89	750 / 0.5	Interdigit	01/01/2002	4, no	17.0/15.0 (1)	0.9 (1)	-	25.0/23.0	40	419 • 292
MwT-A989SB	SOT-89	750 / 0.5	Interdigit	01/01/2002	4, no	17.0/15.0 (1)	0.9 (1)	-	25.0/23.0	40	419 • 292
MwT-11	71	2400 / 0.3	Interdigit	02/02/2003	4, no	9.0 / 7.0	-	-	30.0/28.0	-	775 • 343
MwT-17	89 / 71	2400 / 0.8	Interdigit	04/04/2005	5, no	7.0 / 6.0	-	-	29.5/28.5	45/-	1130 • 279
MwT-1789	SOT-89	2400 / 0.8	Interdigit	04/04/2005	4, no	--	(3)	14.0 (1)	28.0	46	1130 • 279
MwT-1789SB	SOT-89	2400 / 0.8	Interdigit	04/04/2005	4, no	--	(3)	18.0 (1)	28.0	44	1130 • 279
MwT-17Q3	QFN	2400 / 0.8	Interdigit	04/04/2005	4, no	18.0/16.0 (1)	1.5 (1)	-	28.0/27.0	46	1130 • 279
MwT-PH4	70, 73 / 71	180 / 0.3	single stripe	01/01/2002	5, no	11.0 / 10.0	1.2	13 / 12.0	20.0/18.0	-	356 • 241
MwT-PH5	-	300 / 0.3	single stripe	01/01/2002	4, no	18.0 / 15.0	2.0 / -	12.0 / -	20.0/18.0	-	406 • 241
MwT-PH7	70, 73 / 71	250 / 0.3	single stripe	01/01/2002	4, no	13.5 / 12.0	-	-	24.0/22.0	-	356 • 241
MwT-PH8	71	1200 / 0.3	Interdigit	02/02/2003	4, no	10.0 / 9.0	-	-	30.0/29.0	-	673 • 305
MwT-PH9	70, 73 / 71	750 / 0.3	Interdigit	01/01/2002	4, no	10.0 / 9.0	-	-	27.0/26.0	-	419 • 292
MwT-PH11	71	2400 / 0.3	Interdigit	02/02/2003	4, no	9.0 / 7.0	-	-	32.0/30.0	42	775 • 343
MwT-PH15	70, 73 / 71	630 / 0.3	single stripe	03/02/2005	4, no	12.0 / 10.0	-	-	28.5/27.0	-	775 • 241
MwT-PH16	71	900 / 0.3	single stripe	06/02/2007	4, no	11.5 / 10.0	-	-	30.0/28.5	-	1067 • 241
MwT-PH16A	71	1600 / 0.25	Interdigit	04/04/2005	4, no	11.0 / 9.5	-	-	31.0/29.0	-	1126 • 330

SB = Self-Biased (1) @ 2.0GHz, (2) noise fi gure = 0.8dB @ 0.9Ghz, (3) noise fi gure = 3.0dB @ 2.0Ghz,(4) noise fi gure = 1.3dB @ 2.0Ghz, (5) @ 4.0Ghz * Consult Factory for Available Packaging: 70 / 73 / 71 / 89 / Q3. ** Low Phase Noise.

GaAs FETs / PHEMTs DC Properties

Model	Device Type	IDD Range Min/Max (mA)	GM Tested Vds/Vgs (V/V)	Gm Typ/Min (mS)	Vp Tested at Vds/Ids (V/mA)	Vp Typ/Max (-V)	Bvgso Test-ed lgs (-mA)	Bvgso Typ/Min (-V)	Bvgdo Test-ed lgs (-mA)	Bvgdo Typ/Min (-V)	Vds Abso-lute Max (V)	Chip Rth Typ (*o)C/W)	Ideal Circuit
MwT-1	MESFET	60 / 240	4.0 / 0.0	120 / 90	3.0 / 4.0	2.0 / 5.0	1	10.0 / 5.0	1	10.0 / 6.0	6.0	80	FB Amp
MwT-2	MESFET	60 / 240	4.0 / 0.0	100 / 75	3.0 / 4.0	2.0 / 5.0	0.4	12.0 / 6.0	0.4	12.0 / 8.0	7.0	80	BA Amp
MwT-3	MESFET	30 / 120	4.0 / 0.0	55 / 35	3.0 / 2.0	2.0 / 5.0	0.2	12.0 / 6.0	0.2	12.0 / 8.0	7.0	150	BA Amp
MwT-4	MESFET	18 / 66	3.0 / 0.0	35 / 27	3.0 / 1.0	1.5 / 4.0	0.2	8.0 / 5.0	0.2	8.0 / 6.0	6.0	250	Osc & Amp
MwT-5	MESFET	30 / 110	2.0 / 0.0	40 / 23	3.0 / 0.0	2.0 / 4.5	0.4	8.0 / 5.0	0.4	10.0 / 7.0	6.5	150	Buffer Amp
MwT-7	MESFET	26 / 98	3.0 / 0.0	45 / 36	3.0 / 1.0	1.5 / 4.5	0.4	8.0 / 5.0	0.4	8.0 / 6.0	6.0	180	BA/SE Amp
MwT-LP7	MESFET	38 / 98	3.0 / 0.0	45 / 36	3.0 / 1.0	1.5 / 4.5	0.4	8.0 / 5.0	0.4	8.0 / 6.0	6.0	180	Oscillator
MwT-8	MESFET	120 / 480	2.5 / 0.0	160 / 144	3.0 / 5.0	2.0 / 5.0	1.2	12.0 / 8.0	1.2	12.0 / 8.0	7.5	45	Power Amp
MwT-A9	MESFET	78 / 282	2.0 / 0.0	120 / 95	3.0 / 5.0	2.0 / 5.0	1	10.0 / 5.0	1	10.0 / 6.0	6.0	70	FB Amp
MwT-A989	MESFET	100 / 200	2.0 / 0.0	90 / 120	3.0 / 5.0	2.0 / 5.0	1	10.0 / 5.0	1	10.0 / 6.0	8.0	75	Power Amp
MwT-A989SB	MESFET	100 / 200	2.0 / 0.0	90 / 120	3.0 / 5.0	2.0 / 5.0	1	10.0 / 5.0	1	10.0 / 6.0	8.0	75	Power Amp
MwT-11	MESFET	240 / 920	2.5 / 0.0	380 / 290	3.0 / 6.0	2.0 / 5.0	2.4	12.0 / 8.0	2.4	12.0 / 8.0	8.0	28	Power Amp
MwT-17	MESFET	240 / 920	2.0 / 0.0	380 / 290	3.0 / 16.0	2.0 / 5.0	1.6	12.0 / 6.0	1.6	12.0 / 8.0	7.0	33	High Linearity
MwT-1789	MESFET	440 / 680	2.5 / 0.0	380 / 290	3.0 / 16.0	2.0 / 5.0	2.4	12.0 / 6.0	2.4	12.0 / 9.0	8.0	35	High Linearity
MwT-1789SB	MESFET	440 / 680	2.0 / 0.0	380 / 290	3.0 / 16.0	2.0 / 5.0	2.4	12.0 / 6.0	2.4	12.0 / 9.0	8.0	30	Power Amp
MwT-17Q3	MESFET	440 / 680	2.5 / 0.0	380 / 290	3.0 / 16.0	2.0 / 5.0	2.4	12.0 / 6.0	2.4	12.0 / 9.0	8.0	35	Power Amp
MwT-PH4	PHEMT	18 / 66	2.5 / 0.0	58 / 36	3.0 / 1.0	1.2 / 2.5	0.4	12.0 / 6.0	0.4	12.0 / 8.0	7.0	210	Osc & Amp
MwT-PH5	PHEMT	40 / 120	2.5 / 0.0	60 / 40	3.0 / 2.0	1.2 / 2.5	0.4	12.0 / 6.0	0.4	13.0 / 10.0	7.0	150	Power Amp
MwT-PH7	PHEMT	50 / 122	2.5 / 0.0	80 / 50	3.0 / 1.0	1.2 / 2.5	0.4	12.0 / 6.0	0.4	12.0 / 8.0	7.0	150	Medium pow
MwT-PH8	PHEMT	240 / 600	2.5 / 0.0	320 / 240	3.0 / 8.0	1.2 / 2.5	1.2	12.0 / 6.0	1.2	13.0 / 10.0	8.0	40	Medium pow
MwT-PH9	PHEMT	120 / 292	2.5 / 0.0	200 / 150	3.0 / 5.0	1.2 / 2.5	1	12.0 / 6.0	1	13.0 / 10.0	8.0	56	Power Amp
MwT-PH11	PHEMT	440 / 800	2.0 / 0.0	800 / 450	3.0 / 16.0	1.2 / 2.5	2.4	12.0 / 6.0	2.4	13.0 / 10.0	8.0	24	Power Amp
MwT-PH15	PHEMT	120 / 240	2.5 / 0.0	200 / 130	3.0 / 2.0	1.2 / 2.5	1	12.0 / 6.0	1	13.0 / 10.0	8.0	65	Medium pow
MwT-PH16	PHEMT	150 / 360	2.5 / 0.0	280 / 180	3.0 / 3.0	1.2 / 2.5	1	12.0 / 6.0	1	13.0 / 10.0	8.0	45	Medium pow
MwT-PH16A	PHEMT	300 / 600	2.0 / 0.0	400 / 300	3.0 / 2.0	1.2 / 2.5	2	8.0 / 6.0	2	13.0 / 10.0	9.0	30	Medium pow

*Consult Factory for Available Packaging: 70 / 73 / 71 / 89 / Q3
NOTE: Consult Factory For Binning Ranges

Legacy Devices

These products are available for purchase in limited quantities and may continue to be used in existing systems or designs. We encourage manufacturers and designers to transition to newer alternatives as these legacy products are nearing the end of their product life cycle, resulting in potential obsolescence and limited long term support.

Broadband Low Noise Amplifiers

Model	Pkg/Chip	Freq (GHz)	Linear Gain Typ (dB)	Gain Flatness Typ (±dB)	Input RL Typ (dB)2	Output RL Typ (dB)3	NF Typ (dB)4	Pout @-1dB Typ (dBm)	Vdd (V)	Typ (mA)
MLA-0522A	CHIP	1 - 2	16	1.3	14	13	1.5	15	3	70
MLA-0122B	CHIP	1 - 10	17	1	14	11	1.6	16	5	55
MLA-0122B-C4	4X4 QFN	1 - 10	17	1	14	11	1.6	16	5	55
MLA-0122B-H7	H7	1 - 12	16	1	10@1-8GHz	13@1-8GHz	1.9@6GHz	16@6GHz	5	55
MLA-0522A	CHIP	.2 - 1	17	0.5	12	20	1	16	3	70
MLA-0522A-87	87	.2 - 1	17.5	1	10	11	1	15	3	65
MLA-0522A-87	87	1 - 2	15	1.3	13	12	1.2	15	3	65

Low Noise GaAs FETs

Model	NF @ 12 GHz Typ (dB)	NF @ 4 GHz Typ (dB)	Ga @ N.F @ 12 GHz Typ (dB)	Ga @ N.F @ 4 GHz Typ (dB)	Gate width / Length (um)	P-1dB @ 12 GHz Typ (dB)
MwT-LN180	0.50	0.20	10 / --	10 / --	180 / 0.15	16.0
MwT-LN240	0.50	0.20	10 / --	10 / --	240 / 0.15	16.0
MwT-LN300	0.60	0.20	10 / --	10 / --	300 / 0.15	16.0
MwT-LN600	0.50	0.20	9 / 8	9 / 8	600 / 0.15	20.0

Space Qualified Low Noise Amplifiers

Model	Pkg/Chip	Freq (GHz)	Linear Gain Typ/Min(dB)	Gain Flatness Typ/Max (±dB)	Input RL Typ (dB)	Output RL Typ (dB)	NF Typ (dB)	Pout @ -1 dB Typ (dBm)	Vdd (V)	DC Current Typ/Max (mA)
MLA-01122B	C4,H6	.2-1	17	0.5	12	20	1	16	3	70
		1-2	16	1.3	14	13	1.5	15	3	70
MLA-0522A	87	1-10	17	1	14	11	1.6	16	5	55



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